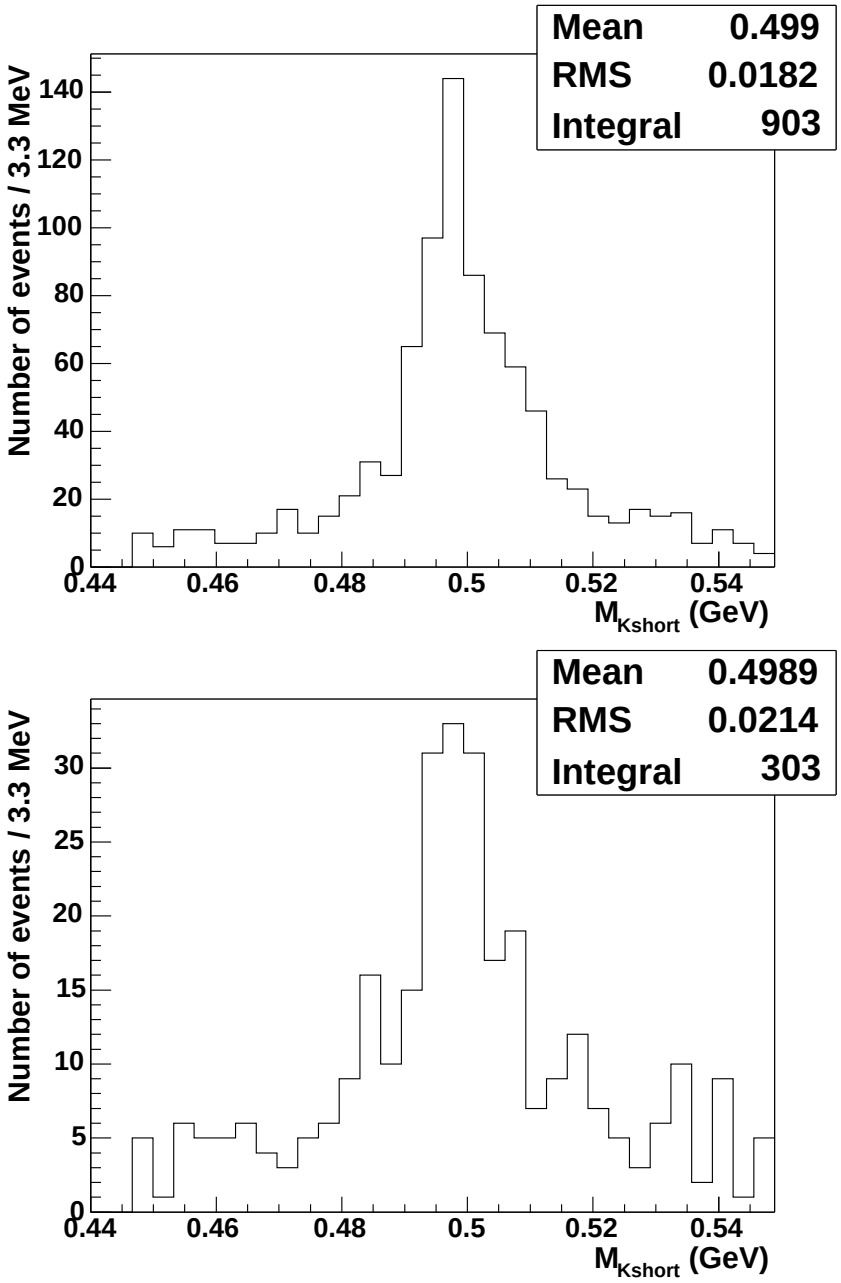
KShort defTrack Studies

- Compares three pad track definations for COT tracks
  - $\geq$ 20 Axial hits, $\geq$ 16 stereo hits
  - $\geq$ 2 Axial segs, $\geq$ 2 stereo segs, each seg has $\geq$ 6 hits
  - $\geq$ 2 Axial segs, $\geq$ 2 stereo segs, each seg has $\geq$ 5 hits
- Samples
  - J/ψ
  - K_s
- Conclusion
  - Maintained the efficiency for tracks with P_T higher than 1 GeV/c
  - Achieved higher efficiencies for low P_T tracks

K_s mass distribution. Both legs central

- At least one leg failed (20, 16) cut
- At least one leg failed (2,2)+χ^2/D.O.F. cuts. Each segs has at least 5 hits.



Efficiencies from K_s mass distributions

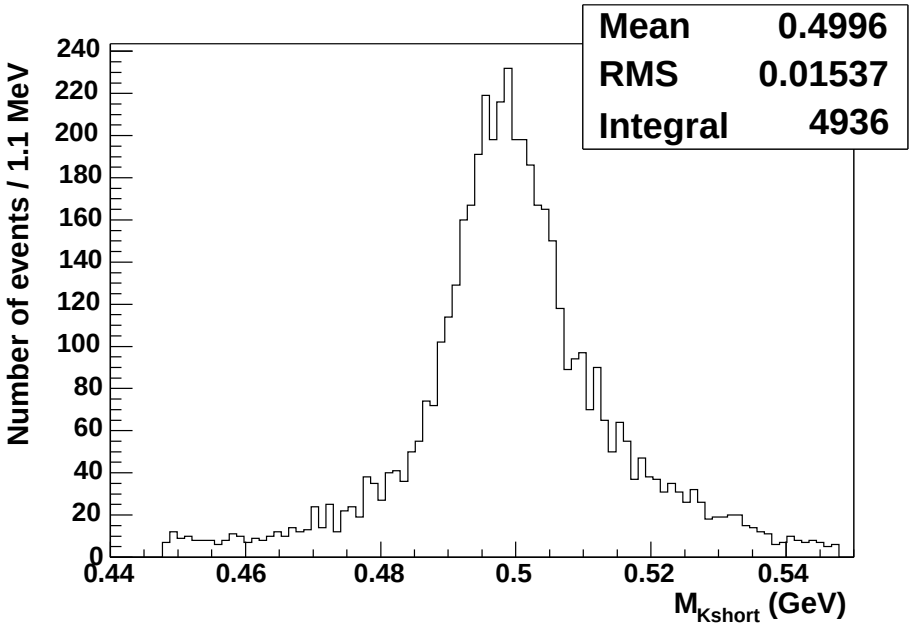
- C-C K_s

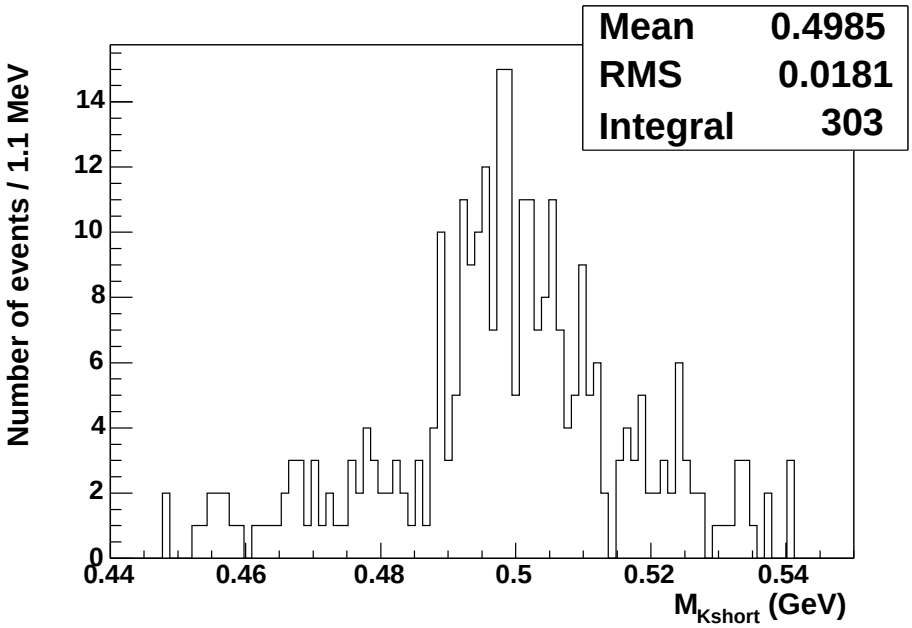
Pad cuts	Accepted	Efficiency	Rejected	Inefficiency
(20,16)	73139	98.8%	903	1.2 %
(2,2), 6 hits/seg	73394	99.1%	648	0.88%
(2,2), 5 hits/seg	73739	99.6%	303	0.41%

Table 1: *The number of K_s where both legs pass the pad cuts, or at least one leg failed the cuts.*

K_s mass distribution. At least one is in plug

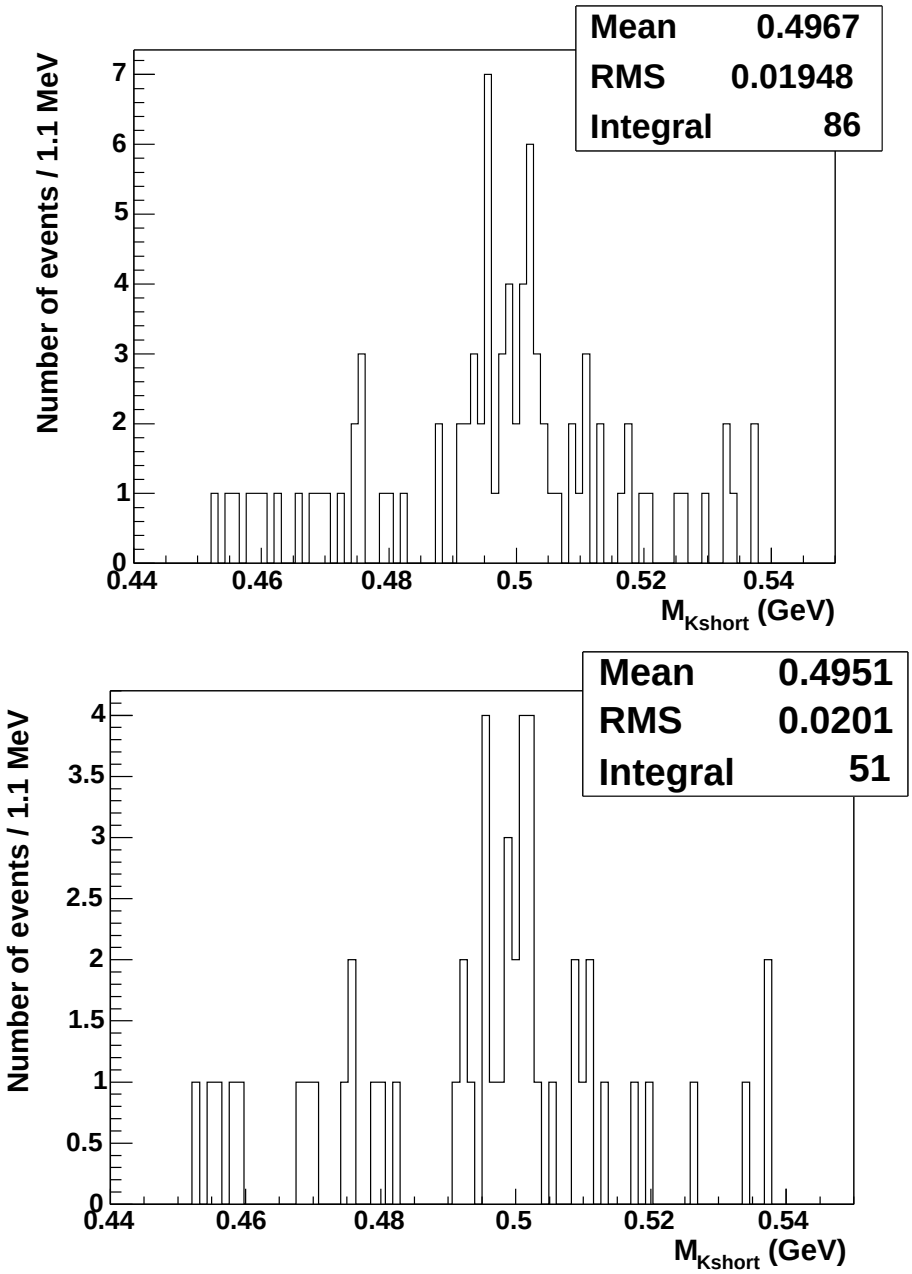
- All K_s where at least one leg is in plug
- At least one leg failed (20, 16) cut





K_s mass distribution. At least one is in plug

- At least one leg failed (2,1), 6hits/seg
- At least one leg failed (2,1), 5hits/seg



Efficiencies from K_s mass distributions

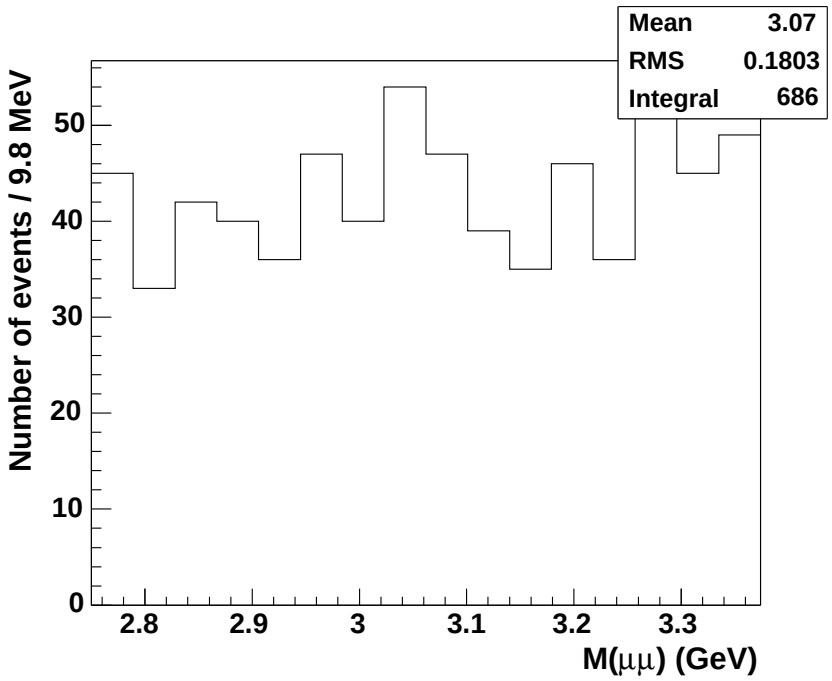
- C-P and P-P K_s

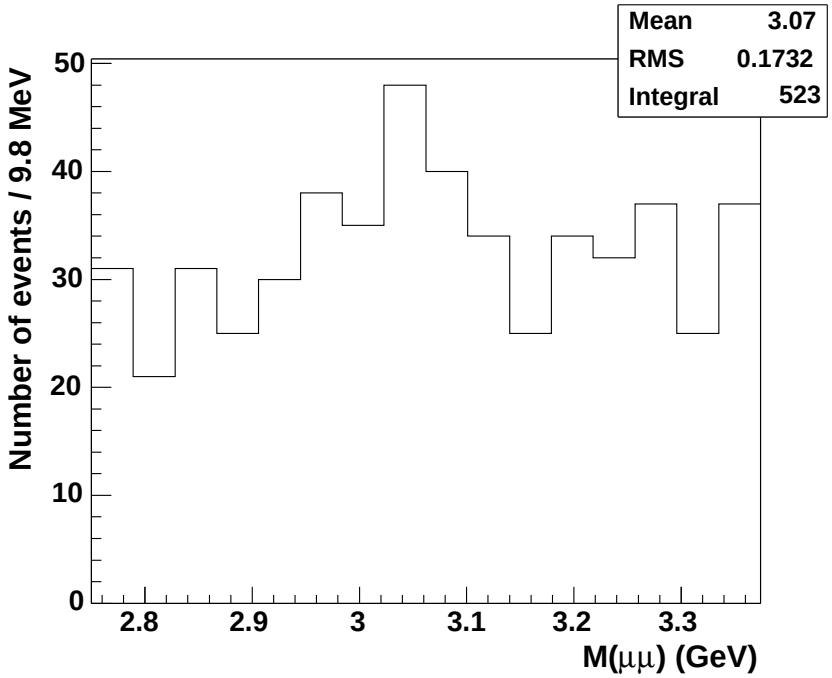
Pad cuts	Accepted	Efficiency	Rejected	Inefficiency
(20,16)	4633	93.9%	303	6.1%
(2,2), 6 hits/seg	4850	98.3%	86	1.7%
(2,2), 5 hits/seg	4885	99.0%	51	1.0%

Table 2: *The number of K_s where both legs pass the pad cuts, or at least one leg failed the cuts.*

J/ψ mass distribution. Both legs central

- At least one leg failed (20,16)
- At least one leg failed (2,2), 5hits/seg





Efficiencies from J/ψ mass distributions

- C-C J/ψ

Pad cuts	Accepted	Efficiency	Rejected	Inefficiency
(20,16)	40828.73	99.97%	10.58	0.03%
(2,2), 6 hits/seg	40796.92	99.89%	42.21	0.10%
(2,2), 5 hits/seg	40812.23	99.93%	26.45	0.06%

Table 3: *The number of J/ψ where both legs pass the pad cuts, or at least one leg failed the cuts.*